

2) and basal webbing; the webbing formula for the holotype (based on the formula given by Savage and Heyer, *Beit. Neotropischen Fauna* 5:111-131, 1968): I 2'-2 II 2'-3' III 2½-4 IV 3¾-2½ V; legs of moderate length, heel of adpressed hindlimb reaches to tip of snout; when legs are flexed at right angles to the sagittal line, heels touch.

The holotype is an adult female with convoluted oviducts and a few moderate-sized (2.0 mm in diameter) yellow eggs interspersed among many small (0.5-1.0 mm) white eggs. The paratype is an adult male with vocal slits and a sub-gular vocal sac; the testes are large and white and the thumbs are swollen at their bases. The measurements (in mm) are as follows; data for the holotype are given first, data for the paratype follow in parentheses: snout-vent length 30.8 (22.1), shank 17.0 (12.2), head width 12.2 (8.6), head length 9.7 (7.3), eyelid width 2.6 (1.7), interorbital distance 2.5 (2.2), eye length 4.2 (3.0), eye-nostril distance 2.8 (2.5).

In preservative, *E. pugnax* is brown with darker brown blotches, interorbital triangle, and limb bars. The limb bars are about as wide as the interspaces. Dark brown canthal and supratympanic stripes and labial bars are present. The posterior surfaces of the thighs are brown with cream flecks. The venter of the female is dirty cream with numerous brown spots; the lower surfaces of the hindlimbs are brown with cream reticulation. The venter of the male is creamy-white with a few brown flecks (primarily on the lower venter); the undersides of the thighs are heavily speckled with brown.

In life, *E. pugnax* was described as "Dorsal surfaces and flanks grayish-brown with dark brown markings. Venter gray with brown flecks. Iris reddish-brown." (W. E. Duellman field notes, 7 April 1972).

*Etymology*.—Latin, *pugnax*, meaning fighter; in loose reference to the collector, William E. Duellman.

*Natural history*.—The pronounced lateral fringing and basal webbing of the toes suggests that *E. pugnax* is a riparian species. The holotype and paratype were collected beneath rocks in a fast-moving stream in cloud forests by day. The male is reproductively active (swollen, non-spinous thumb; large testes) but the female probably is not.

*Relationships*.—Few mainland *Eleutherodactylus* species have toe webbing; those that do (e.g., *E. anomalus*, *E. bufoniformis*, *E. fitzingeri*) are members of the *E. binotatus* group [first finger longer than second, skin of venter smooth, ear prominent (i.e., tympanic annulus large and externally visible)] and frequently live near streams. The West Indian *Eleutherodactylus* with toe webbing and prominent fringes are likewise strongly riparian in habit (Schwartz, *Stud. Fauna Curacao and other Carib. Islands* 24:1-62; Shreve and Williams, in Williams, *et al.*, *Bull. Mus. Comp. Zool.* 129:291-342, 1963). I do not think that either of the more distinctive

features of *E. pugnax* (earlessness, toe webbing) are reliable indicators of relationship.

*Eleutherodactylus pugnax* is a member of the Cochran and Goin's (*Bull. United States Nat. Mus.* (288):1-655, 1970) Group II which I prefer to call the *E. unistrigatus* group, defined by having a granulate or areolate skin on the venter and the first finger being shorter than the second. *Eleutherodactylus pugnax* has no apparent close relatives within this group.

William E. Duellman loaned the specimens, provided additional information about the locality and its habitat, and permitted me to use his kodachrome of the frog.

JOHN D. LYNCH, *Dept. Zoology, University of Nebraska, Lincoln, Nebraska 68508.*

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#### A NEW SPECIES OF TREMATODE (TREMATODA: MONOGENEA) FROM THE GILLS OF *DIAPHUS WATASEI* JORDAN AND STARKS, 1904.

Through the courtesy of B. Nafpaktitis, Department of Biological Sciences, University of Southern California, some monogenetic trematodes from the gills of a myctophid fish, *Diaphus watasei* Jordan and Starks, 1904 (identified by Nafpaktitis) were obtained for study. The fish were collected between 400 and 450 fathoms off the southeast coast of Africa by the Anton Brunn International Indian Ocean Expedition. Two of eighteen fish had a total of five parasites that are described here as a new species of *Diclidophora* Diesing, 1850. They were stained with Mayer's paracarmine, cleared with methyl benzoate, and mounted in Canada balsam. Measurements are expressed in microns.

#### *Diclidophora sprostonae*, new species

*Diagnosis*: With the characters of the genus. Length 2198, 1092 wide. Opisthaptor attached to ventral side of body, with 8 short peduncles and clamps (two lost from best extended specimen) 770 long, 182-266 wide. Clamps with muscular pads, 140-160 long, 112-126 wide. Body tapers anteriorly. Oral cavity followed by pharynx 65 long, 44 wide. Esophagus 2-3 times length of pharynx. Intestinal crura confluent posteriorly with numerous diverticula directed peripherally and medially. A diverticulum extends into opisthaptor. Testes arranged in radiating cords, mainly postovarial between intestinal crura. Convoluted vas deferens extends anteriorly to ventral genital pore at mid-esophageal

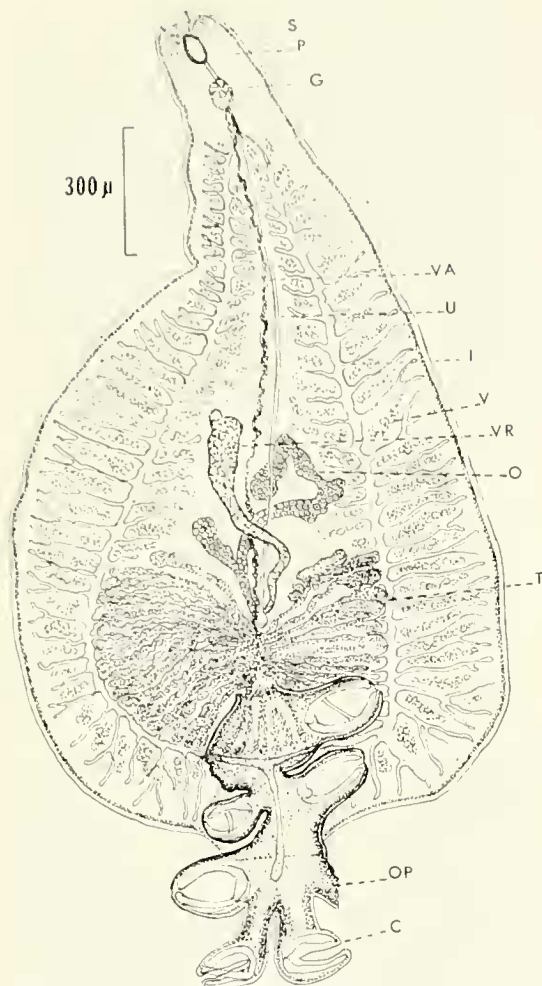


Figure 1. Ventral view of *Diclidophora sprostonae*, new species; C, clamps; G, genital pore; I, intestine; O, ovary; OP, opisthaptor; P, pharynx; S, sucker; T, testes; U, uterus; V, vitellaria; VA, vas deferens; VR, vitelline reservoir.

level. Cirrus diameter about 30, armed with six curved spines about 9 long, ovary ribbon-like, looped, median and pretesticular. Vitelline follicles small, numerous, in groups between intestinal diverticula and extending into opisthaptor. Vitelline reservoir adjacent to ovary, with expanded anterior end. Genitointestinal canal on right side. Seminal receptacle not seen. Uterus median, tubular, from testicular level to common genital pore. None contained eggs.

*Host:* *Diaphus watasei* Jordan and Starks, 1904.

*Habitat:* Gills.

*Type Locality:* Off southeast coast of Africa.

*Holotype:* No. 639, deposited in the Hancock Parasitology Collection, University of Southern California.

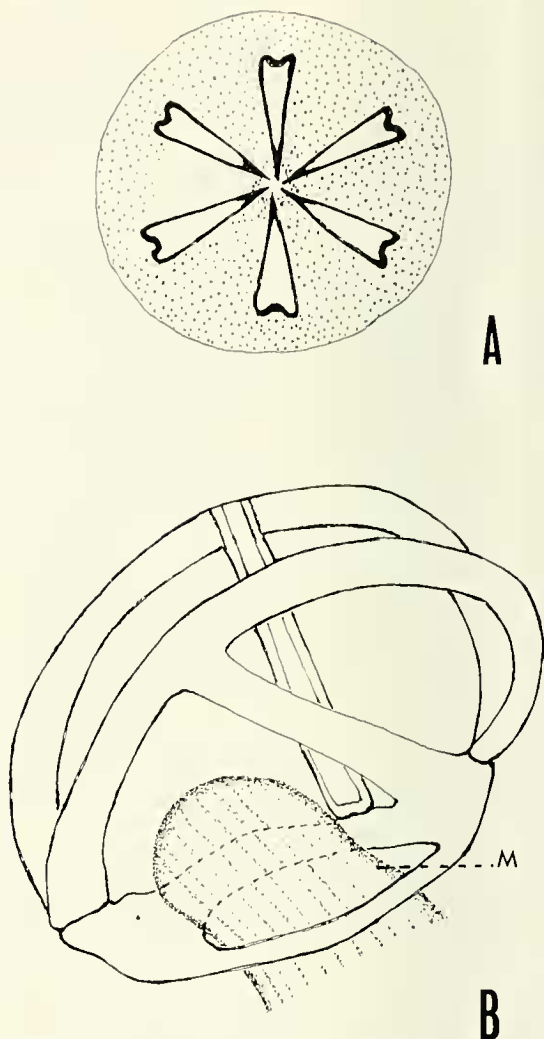


Figure 2. A, Cirrus spines and B, sclerites of clamp; (M, muscular pad) of *Diclidophora sprostonae*, new species.

## DISCUSSION

These worms were removed from the gills of fish that had been preserved for several years and most of them were poorly distended. *Diclidophora sprostonae* differs from other species of the genus in the numbers of cirrus spines and in the fan-like arrangement of the testes. Several authors (Llewellyn and Tully, *J. Fish. Res. Bd. Canada*, 26: 1063-1074, 1969; Sproston, *Trans. Zool. Soc. London*, 25: 185-600, 1946, etc.) have mentioned the variation in the number of cirrus spines or hooks in individuals of the same species. All specimens of *Diclidophora sprostonae* possess six hooks. Perhaps a larger number of specimens might show variation in this character. Although all specimens

appeared mature, none had eggs. Yamaguti (Systema Helminthum, Vol. IV. Monogenea and Aspidocoylea. Intersei. Publ., New York, 1963) stated that members of the genus *Diclidophora* are parasitic on the fish families Gadidae, Merlucciidae, and Macrouridae. The present paper adds the family Myctophidae. Monogenetic trematodes are generally considered to be host specific.

W. E. MARTIN, Dept. Biological Sciences, Univ. Southern California, Los Angeles, California 90007.

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### A NEW SPECIES OF *STRAPAROLLUS* (ARCHAEOGASTROPODA) FROM THE MISSISSIPPIAN OF NEVADA

During a recent biostratigraphic study (Mount, 1972a, 1972b) of the larger invertebrates in the Upper Paleozoic section of the central Pancake Range, Nye County, Nevada, I placed particular emphasis on the distribution of Mollusca in the Mississippian and Pennsylvanian rocks. Excluding the Cephalopoda, mollusks of this age are poorly known in the Great Basin area of North America. In his pioneering study of the Eureka district of Nevada, Walcott (1884) described several new bivalves and gastropods, however in later years so little attention has been given to this group that at the present time it is virtually useless for age determination and correlation. Recently, the stratigraphic positions of Walcott's species have become better known as a result of the biostratigraphic work of Gordon (1971). It is the purpose of this paper to describe a new species of the gastropod *Straparollus*. Numerous fossil lists include reference to this genus, but it is generally represented by material too poorly preserved or too scanty to allow species assignment. References to the Department of Geological Sciences, University of California, Riverside, are hereafter abbreviated as UCR.

#### Family Euomphalidae de Koninck, 1881

Genus *Straparollus* de Montfort, 1810

Subgenus *Euomphalus* Sowerby, 1812

#### *Straparollus (Euomphalus) pancakensis*, new species

Figure 1

*Straparollus (Euomphalus)* n. sp. A: Mount, 1972b, p. 75, pl. 2, figs. 18, 19, 20.

**Diagnosis:** Shell relatively small; whorls 5; spire slightly elevated; single high, broad, rounded spiral rib medially situated between the upper suture and outer shoulder.

**Description:** Shell relatively small for the genus, subdiscoidal; spire slightly elevated, the first two



A



B



C

Figure 1. *Straparollus (Euomphalus) pancakensis*, new species. Holotype UCR 7101/1. A. Top view. B. Basal view. C. Apertural view.  $\times 2$ .

whorls flattened; moderately phaneromphalus, umbilicus deep with nearly vertical sides, umbilical angle near 80 degrees. Whorls 5, with moderately rounded angulations on outer-upper and -lower shoulders, outer sides of whorl moderately convex, umbilical profile of whorl weakly convex to flattened. Upper sutures shallow and slightly impressed, passing around the previous whorl just below the upper shoulder. Protoconch unknown. Spiral sculpture consists of a single high, broad, rounded rib between upper suture and angulation on the outer shoulder, width of rib about one third that of whorl, slopes of rib slightly concave. Growth lines orthoelone, extending outward to rib on upper whorl, there bending into a sharply defined but shallow sinus; beyond rib growth lines curve slightly backward around whorl to lower suture forming a slightly projecting upper lip over the aperture.

**Holotype:** UCR 7101/1; height 7.8 mm, diameter 20.8 mm, height of aperture 6.0 mm.